WHAT ARE LETHAL AND NON-LETHAL WEAPONS AND WHO DESIGNS THEM?

- Lethal weapon: any firearm, device, instrument, material, or any other substance that is capable of producing great bodily harm or death from the manner it is used or intended to be used, may be referred to as a lethal weapon [1].
- Non-lethal weapons: weapons, devices, and munitions that are explicitly designed and primarily employed to incapacitate targeted personnel or materiel immediately, while minimizing fatalities, permanent injury to personnel, and undesired damage to property in the target area or environment [2].
- In 2017 about 5% of the workforce was occupied by science and engineering occupations, which is roughly 7 million workers [3].
- For the engineering, science and technical sector, 16% of the workforce was military personnel with the civilian workforce only being 6% [4].
- A significant chunk of the science, engineering and technical sector work for the military in some capacity and they are at the forefront of non-lethal weapon development.

WHAT ARE NON-LETHAL WEAPONS USED FOR?

- Used as pacification and compliance weapons [5] [6].
- (a) access denial, (b) crowd control, (c) incapacitating individuals, (d) stopping vehicles, (e) securing areas, (f) clearing areas, (g) stopping watercrafts, (h) establishing watercraft perimeters, (i) stopping swimmers and (j) threat detection [7].

EMERGING NON-LETHAL TECHNOLOGY

Instead of Firearms

- Variable Kinetic Systems: launches powered by compressed air that deploy projectiles like blunt impact rounds, marking rounds, glass breakers, oleoresin capsicum/PAVA powder and CS powder rounds [8].
- Long Range Wireless Stun Devices: fires plastic shells each adorned with sharpened electrodes that pierce clothing and skin, a battery, transmitter, and a microprocessor [6].

Instead of Explosives

- Laser-induced Plasma Effects: operational within the next 4 years [9]. Utilizes two lasers to release an ear-splitting burst of sound energy [10] [11].
- Active Denials Systems: counter-personnel ‘heat ray’ that creates a very uncomfortable heating sensation on the epidermis [12]. Encourages all within its range to rapidly vacate the area with very minimal risk of injury [13].

Instead of Chemical Weapons

- Malodorants: used to vacate areas and provide crowd control through an intensely putrid smelling spray [14]. Skunk water, launched by Israeli company OdorTech in 2008, is 100% organic and harmless [15].

WHAT DOES THE FUTURE HOLD FOR NON-LETHAL SOLUTIONS?

- The future of the development and deployment of non-lethal technology will be heavily dependent on the solicitations given by the Joint Non-lethal Weapons Program.
- Minimizing civilian casualty does not necessarily take into consideration potential abuses of non-lethal technology that may not result in death.
- Equal support must be granted to earnest efforts of ensuring that this technology will not be abused by its wielders and we must engage in the proactive pursuit of protection and justice for potential recipients of its impacts [16].

REFERENCES